

COURSE COMPACT

Course

Course code: MCB 423

Course title followed by the credit unit. Virology II (2 UNITS)

Course status: - Compulsory

Course Duration

Two hours per week for 15 weeks (30 hours)

Course lecturers: Okolie (1.0) and Ndako (1.0)

Lecturer Data

Name of lecturer: OKOLIE Charles

Highest qualifications obtained: PhD

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College: College of Science and Engineering

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Name of lecturer: NDAKO James A.

Department: Biological Science

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Office Location: A 308 First College Building, Landmark University Omu-Aran

Course Content:

Structural properties, pathology and pathogenesis, laboratory diagnosis, epidemiology and prophylactic/therapeutic procedures some viral agents of animals and plants common in Africa and Nigeria.

Course Description – Illustration below:

- Viruses are a unique group of biological entities known to infect every type of cell, although the emphasis in this course is on animal viruses, efforts will be made to mention plant viruses.
- Pathogenesis is the process by which an infection leads to disease.
- The topic would explore Pathogenic mechanisms of viral diseases which includes (1) implantation of virus at the portal of entry, (2) local replication, (3) spread to target organs (disease sites), and (4) spread to sites of shedding of virus into the environment. Factors that affect pathogenic mechanisms such as accessibility of

virus to tissues, cell susceptibility to virus multiplication, and virus susceptibility to host defences would be emphasised.

Course Justification Interest in viral pathogenesis stems from the desire to treat or eliminate viral diseases that affect humans. This goal is achieved in part by identifying the viral and host genes that influence the production of disease. Three requirements must be satisfied to ensure successful infection in an individual host: Sufficient virus must be available to initiate infection; Cells at the site of infection must be accessible, susceptible, and permissive for the virus while Local host anti-viral defense systems must be absent or initially ineffective. These reasons partly justify the basis for this course.

Course objectives:

- To fully emphasize the replication at the site of entry of some viruses under study.
- Highlighting the ability of virus particles to remain localized, or spread to other sites.
- To understudy how infection in the epithelium occurs when newly released virus infects adjacent cells.
- Ability of these infections been contained by the physical constraints of the tissue and brought Under control by the intrinsic and immune defenses.
- To elucidate infections that spreads beyond the primary site of infection which is referred to as disseminated.
- If many organs become infected, the infection is described as systemic.
- To mention the spread beyond the primary site of a viral infection, this involves breaching the physical and immune barriers.

Course Requirement –

Students’ ability to attend classes uninterrupted, ability to actively participate in group discussions, timely submission of any given assignment and the participation of students in the CA test.

Method of Grading:

S/N	Grading	Score (%)
1.	Test	20
2.	Assignment	10
3.	Final Examination	70
	Total	100

Course Delivery Strategies –

Lecturing method complimented with group discussions will be adopted. Working programs will be demonstrated through examples of some infectious cases involving some of the viruses under case study, while students will be given take home assignments to write, execute and discuss. Students may sometimes be grouped for the laboratory work.

DETAILS OF LECTURE CONTENT

Week 1: Introductory and General overview of the course content.--**Ndako/Okolie**

The students at the end of the lectures for the week should be able to understand the
Epidemiology
Structural properties
Pathology and pathogenesis
Laboratory diagnosis and prophylactic/therapeutic procedures of some viral agents of animals common in Africa and Nigeria.
Economic relevance of plant viruses **as would be specified and taught per week.**

Description

First hour:

Brief details of some viral families their genomes and physical characteristics. Infectious nature of the viruses would be illustrated based on Epidemiological basis.

Week 2: Ndako

Overview of Various viruses of interest would be highlighted with basis on their Epidemiology Structural properties, Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures.

This week, lectures on SPECIFIC viruses would commence, with the outlined characteristics involving each virus as highlighted.

Inclusive in these weeks are discussion classes, paper presentations and takes home assignments.

Week 3-Herpesviridae group of viruses: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. **NDAKO**

Week 4- Herpes simplex virus type 1&2: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. **NDAKO**

Week 5- Rhabdoviridae: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. **NDAKO**

Week 6- Hepadnaviridae: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. **NDAKO**

Weeks7- Viral Haemorrhagic fever: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. An ex. of Arboviruses would be mentioned. ---**NDAKO**

Week 8- Human Papilloma Virus (HPV): Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and its association **with carcinoma of the cervix.- OKOLIE**

Week 9- Human immunodeficiency Virus: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. **OKOLIE**

Week 10- Viral agents of gastroenteritis Ex. Polio, Rotavirus and Adenovirus: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. **OKOLIE**

Week 11- Animal viruses Ex. Newcastle Disease Virus (NDV) of poultry and Foot and Mouth disease (FMD) of Cattle: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. **OKOLIE**

Week 12- Plant viruses and transmission of infection Ex. are Tobacco Mosaic Virus (TMV) and Cassava Mosaic Virus (CMV) with Economic relevance of plant viruses. **OKOLIE**

Week 13- Will feature rounding up of course contents by both lecturers.

Week 14- will involve revision exercises-----**Okolie/Ndako**




Week 15- will involve revision exercises-----**Okolie /Ndako**

Objectives:

To examine the students on all that has been taught during the semester.

Reading List:

List of reference material:

-  Wiley Microbiology and Virology.
-  Medical Microbiology texts.
-  Principles of Virology: Pathogenesis and Molecular basis of Diagnosis.